



National Transportation Safety Board Aviation Accident Final Report

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| Location: | BELVEDERE CTR, VT | Accident Number: | NYC91FA239 |
| Date & Time: | 09/18/1991, 2150 EDT | Registration: | CFICA |
| Aircraft: | CONVAIR CV-580 | Aircraft Damage: | Destroyed |
| Defining Event: | | Injuries: | 2 Fatal |
| Flight Conducted Under: | Part 129: Foreign | | |

Analysis

THE AIRPLANE WAS CRUISING IN NIGHT INSTRUMENT METEOROLOGICAL CONDITIONS WHEN IT ENTERED A LEFT TURN AND EXCEEDED THE DESIGN AIRFRAME LIMITS. THE AIRPLANE BROKE UP IN THE DESCENT DUE TO AERODYNAMIC FORCES AND WAS DESTROYED.. THE OUTBOARD WING PANELS HAD FAILED DOWNWARD AND CENTER WING SECTION SEPARATED FROM THE FUSELAGE. THE HORIZONTAL STABILIZER AND ELEVATORS HAD FAILED DOWN AND AFT. THE CAPTAIN WAS FOUND OUT OF THE COCKPIT WITH NO EVIDENCE OF HIM BEING IN THE SEAT AT IMPACT A HUMAN FACTORS STUDY FOUND THE AIRCRAFT'S LAST MINUTE OF FLIGHT MATCHED A PROFILE OF A PILOT EXPERIENCING SPATIAL DISORIENTATION.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: FAILURE OF THE FIRST OFFICER (CO-PILOT) TO MAINTAIN CONTROL OF THE AIRCRAFT AFTER BECOMING SPATIALLY DISORIENTED, AND HIS EXCEEDING THE DESIGN STRESS LIMITS OF THE AIRCRAFT. FACTORS RELATED TO THE ACCIDENT WERE: THE LACK OF TWO PILOTS IN THE COCKPIT, DARKNESS, AND INSTRUMENT METEOROLOGICAL CONDITIONS (IMC) AT FLIGHT ALTITUDE.

Findings

Occurrence #1: LOSS OF CONTROL - IN FLIGHT

Phase of Operation: CRUISE - NORMAL

Findings

1. (F) LIGHT CONDITION - DARK NIGHT
 2. (F) WEATHER CONDITION - CLOUDS
 3. (C) AIRCRAFT CONTROL - NOT MAINTAINED - COPILOT/SECOND PILOT
 4. (C) SPATIAL DISORIENTATION - COPILOT/SECOND PILOT
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Occurrence #2: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION

Phase of Operation: DESCENT - UNCONTROLLED

Findings

5. (C) DESIGN STRESS LIMITS OF AIRCRAFT - EXCEEDED - COPILOT/SECOND PILOT
 6. HORIZONTAL STABILIZER ATTACHMENT - OVERLOAD
 7. STABILIZER - SEPARATION
 8. WING - OVERLOAD
 9. WING - SEPARATION
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Occurrence #3: IN FLIGHT COLLISION WITH TERRAIN/WATER

Phase of Operation: DESCENT - UNCONTROLLED

Factual Information

Pilot Information

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|----------------------------------|---|-------------------------------|------------|
| Certificate: | Airline Transport | Age: | 30, Male |
| Airplane Rating(s): | Multi-engine Land; Single-engine Land | Seat Occupied: | Unknown |
| Other Aircraft Rating(s): | None | Restraint Used: | |
| Instrument Rating(s): | Airplane | Second Pilot Present: | Yes |
| Instructor Rating(s): | None | Toxicology Performed: | Yes |
| Medical Certification: | Class 1 Valid Medical--no waivers/lim. | Last FAA Medical Exam: | 12/10/1990 |
| Occupational Pilot: | Last Flight Review or Equivalent: | | |
| Flight Time: | 10400 hours (Total, all aircraft), 1200 hours (Total, this make and model), 8000 hours (Pilot In Command, all aircraft), 193 hours (Last 90 days, all aircraft), 80 hours (Last 30 days, all aircraft), 3 hours (Last 24 hours, all aircraft) | | |

Aircraft and Owner/Operator Information

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|--------------------------------------|--------------------------|---------------------------------------|--------------|
| Aircraft Make: | CONVAIR | Registration: | CFICA |
| Model/Series: | CV-580 CV-580 | Aircraft Category: | Airplane |
| Year of Manufacture: | | Amateur Built: | No |
| Airworthiness Certificate: | Transport | Serial Number: | 98 |
| Landing Gear Type: | Retractable - Tricycle | Seats: | 3 |
| Date/Type of Last Inspection: | 09/11/1991, AAIP | Certified Max Gross Wt.: | 58156 lbs |
| Time Since Last Inspection: | 25 Hours | Engines: | 2 Turbo Prop |
| Airframe Total Time: | 39323 Hours | Engine Manufacturer: | ALLISON |
| ELT: | Installed, not activated | Engine Model/Series: | 501-D13D |
| Registered Owner: | CANAIR CARGO LTD | Rated Power: | 3750 hp |
| Operator: | CANAIR CARGO LTD | Operating Certificate(s) Held: | Air Cargo |
| Operator Does Business As: | | Operator Designator Code: | TEKF |

Meteorological Information and Flight Plan

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|----------------------------------|-------------------------|---|-------------------|
| Conditions at Accident Site: | Visual Conditions | Condition of Light: | Night/Dark |
| Observation Facility, Elevation: | BTV, 334 ft msl | Distance from Accident Site: | 25 Nautical Miles |
| Observation Time: | 2150 EDT | Direction from Accident Site: | 245° |
| Lowest Cloud Condition: | Scattered / 5500 ft agl | Visibility | 10 Miles |
| Lowest Ceiling: | Overcast / 12000 ft agl | Visibility (RVR): | 0 ft |
| Wind Speed/Gusts: | 11 knots / | Turbulence Type Forecast/Actual: | / |
| Wind Direction: | 150° | Turbulence Severity Forecast/Actual: | / |
| Altimeter Setting: | 29 inches Hg | Temperature/Dew Point: | 20° C / 17° C |
| Precipitation and Obscuration: | | | |
| Departure Point: | MONCTON,N.B., CD (YQM) | Type of Flight Plan Filed: | IFR |
| Destination: | HAMILTON,ONT, CD (YHM) | Type of Clearance: | IFR |
| Departure Time: | 2038 EDT | Type of Airspace: | Class E |

Wreckage and Impact Information

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|---------------------|---------|----------------------|-----------|
| Crew Injuries: | 2 Fatal | Aircraft Damage: | Destroyed |
| Passenger Injuries: | N/A | Aircraft Fire: | None |
| Ground Injuries: | N/A | Aircraft Explosion: | None |
| Total Injuries: | 2 Fatal | Latitude, Longitude: | |

Administrative Information

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|-----------------------------------|--|--------------|------------|
| Investigator In Charge (IIC): | Robert L Hancock | Report Date: | 03/31/1993 |
| Additional Participating Persons: | LYLE STREETER; WASHINGTON, DC DAN GOLIGER; MISSISSAUGA, ON, CD MARK GRESIOWSKI; MISSISSAUGA, ON, CD DEAN M COX; INDIANAPOLIS, IN | | |
| Publish Date: | | | |
| Investigation Docket: | NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinquiry@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ . | | |

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The Independent Safety Board Act, as codified at 49 U.S.C. Section 1154(b), precludes the admission into evidence or use of any part of an NTSB report related to an incident or accident in a civil action for damages resulting from a matter mentioned in the report. A factual report that may be admissible under 49 U.S.C. § 1154(b) is available [here](#).